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(54) Title: METHODS, SOFTWARE ARRANGEMENTS, STORAGE MEDIA, AND SYSTEMS FOR GENOTYPING OR HAPLOTYPING POLYMORPHIC GENETIC LOCI OR STRAIN IDENTIFICATION

(57) Abstract: The present invention relates generally to systems, methods, storage media, and software arrangements for genotyping and/or haplotyping a sequence of polymorphic genetic loci in a deoxyribonucleic acid (DNA) sample or identifying a strain variant from the DNA sample. Exemplary embodiments of systems, methods, storage media, and software arrangements may perform the optimization of the design of one or more microarrays, each containing a set of oligonucleotide probes capable of detecting one or more known genotypes and/or haplotypes at given polymorphic genetic loci or identifying the strain variant, by optimizing the set of oligonucleotides to be incorporated into the microarrays and by optimizing the arrangement of a set of oligonucleotides on the microarrays. The optimization may be achieved through the application of one or more optimization procedures. The instant invention may be useful in typing individuals at the HLA loci or other polymorphic genetic loci, or may be employed to quickly identify viral or bacterial pathogens from which genome sequence information is available.